

MITIGATION MEASURE ANALYSIS: BEAUFORT SEA

The following instructions are provided for guidance to adequately complete the Mitigation Measure Analysis form.

1. The applicant shall respond to each Mitigation Measure, and all subsets of mitigation measures; i.e. A.2.d.i should be addressed and A.2.d.ii, and so forth.
2. The applicant's response shall begin by clearly indicating if the mitigation measure is satisfied, a waiver is requested, or if the mitigation measure is not applicable.
3. The applicants' response shall then address how the proposed project clearly satisfies the mitigation measure, meets the intent of the mitigation measure, is not practicable, or is not applicable.
4. The applicant shall verify working 'in consultation with' parties other than Department of Natural Resources (DNR), Division of Oil and Gas (DO&G) by reporting meeting dates and parties present for Mitigation Measures which require consultation with parties other than DNR, DO&G; i.e. Mitigation Measure 1.b.

Please note that this form, along with the Plan of Operations Application form and the Plan of Operations, must be adequately completed before DNR DO&G will review an application for potential approval.

Beaufort Sea	
A. Mitigation Measures	Company Response
1. Facilities and Operations	
<p>a. A plan of operations must be submitted and approved before conducting exploration, development, or production activities, and must describe the lessee's plans to avoid or minimize impacts on residential, commercial, and recreational areas, Native allotments and subsistence use areas. At the time of application, lessee must submit a copy of the proposed plan of operations to all surface owners whose property will be entered.</p>	<p>A.1.a. Satisfied: NordAq Energy, Inc. (NordAq) has developed a Plan of Operations (Plan) and has submitted said plan to the Division of Oil and Gas (DOG). NordAq has also supplied all surface owners whose property will be entered with a copy of the Plan.</p>
<p>b. Facilities must be designed and operated to avoid or minimize sight and sound impacts in areas of high residential, commercial, recreational, and subsistence use and important wildlife habitat. Methods may include providing natural buffers and screening to conceal facilities, sound insulation of facilities, or by using alternative means approved by the director, in consultation with ADF&G and the NSB.</p>	<p>A.1.b. Satisfied: The proposed facilities are temporary in nature and include an ice island, ice runway, and the temporary placement of a staging camp, a shore camp, and the drilling camp. All camps and support facilities as well as the drill rig will be removed from the project area in 2015.</p>
<p>c. To the extent practicable, the siting of facilities, other than docks, roads, utility, and pipeline crossings will be prohibited within 500 feet of all fish-bearing streams and water bodies and 1,500 feet from all current surface drinking water sources. Additionally, to the extent practicable, the siting of facilities will be prohibited within one-half mile of the banks of the main channel of the Colville, Canning, Sagavanirktok, Shaviovik, Kadleroshilik, and Kuparuk rivers. Facilities may be sited within these buffers if the lessee demonstrates to the satisfaction of the director, in consultation with ADF&G, that site locations outside these buffers are not practicable or that a location inside the buffer is environmentally preferred. Road, utility, and pipeline crossings must be consolidated and aligned perpendicular or near perpendicular to watercourses.</p>	<p>A.1.c. Satisfied: NordAq will design, site, and operate the exploration drilling facilities and support facilities to meet this mitigation measure where practicable and in accordance with the fish habitat permits received from ADF&G. The camp facilities will be sited near Lake 654 which is not fishbearing. The ice island containing the drilling facilities will be sited in Smith Bay at a location that is best suited to meet the geologic, safety, and environmental requirements of the project.</p>
<p>d. Impacts to identified wetlands must be minimized to the satisfaction of the director, in consultation with ADF&G and ADEC. The director will consider</p>	<p>A.1.d. Satisfied: All activities are proposed to take place during the winter and are</p>

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whether facilities are sited in the least sensitive areas. Further, certain activities within wetlands require permission from the U.S. Army Corps of Engineers.	intended to avoid and minimize impacts to wetlands. Winter off-road travel will be conducted in accordance with ADNR and BLM guidelines to further avoid and minimize impacts to wetlands.
e. Exploration facilities must be temporary and must be constructed of ice unless the director determines that no practicable alternative exists. Use of gravel structures may be permitted on a case-by-case basis by the director, after consultation with DMLW, and ADF&G. Approval for use of existing structures will depend on the extent and method of restoration needed to return these structures to a usable condition.	A.1.e. Satisfied: All roads and pads will be temporary and will be constructed of ice and/or packed snow. NordAq does not intend to re-use any abandoned gravel structures for exploration activities.
f. Pipelines must utilize existing transportation corridors where conditions permit. Pipelines and gravel pads must be designed to facilitate the containment and cleanup of spilled fluids. Where practicable, onshore pipelines must be located on the upslope side of roadways and construction pads unless DMLW determines that an alternative site is environmentally acceptable. Wherever possible, onshore pipelines must be buried where soil and geophysical conditions permit. All pipelines, including flow and gathering lines, must be designed, constructed and, maintained to assure integrity against climatic conditions, geophysical hazards, corrosion and other hazards as determined on a case-by-case basis.	A.1.f. N/A: No pipelines are proposed for this exploration well drilling project.
g. Onshore pipelines shall be designed and constructed to minimize alteration of caribou and other large ungulate movement and migration patterns. At a minimum, above-ground pipelines shall be elevated 7 feet, as measured from the ground to the bottom of the pipe, except where the pipeline intersects a road, pad, or a ramp installed to facilitate wildlife passage. Lessees shall consider increased snow depth in the sale area in relation to pipe elevation to ensure adequate clearance for wildlife. ADNR may, after consultation with ADF&G, require additional measures to mitigate impacts to wildlife movement and migration.	A.1.g. N/A: No pipelines are proposed for this exploration well drilling project.
h. All pipelines, including flow and gathering lines, must be designed and constructed to provide adequate protection from water currents, storm and ice scouring, subfreezing conditions, coastal erosion, permafrost thawing, and other hazards as determined on a case-by-case basis.	A.1.h. N/A: No pipelines are proposed for this exploration well drilling project.
i. Offshore oil and gas transportation pipelines will be encouraged if the director	A.1.i.

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determines that the laying of such pipelines is technically feasible and environmentally preferable to transport by oil tanker or other means.	N/A: No pipelines are proposed for this exploration well drilling project.
j. Following the installation of a pipeline of sufficient capacity, no crude oil will be transported by surface vessel from offshore production sites, except in an emergency. The director will evaluate the emergency and determine an appropriate response to the condition.	A.1.j. N/A: No pipelines are proposed for this exploration well drilling project.
<p>k. Causeways</p> <ul style="list-style-type: none"> i. Continuous-fill causeways are prohibited. Environmentally preferred alternatives for field development include use of buried pipelines, onshore directional drilling, or elevated structures. Non-continuous-fill causeways must be designed, sited, and constructed to prevent significant changes to nearshore oceanographic circulation patterns and water quality characteristics (e.g., salinity, temperature, suspended sediments) that exceed water quality criteria, and must maintain free passage of marine and anadromous fish. ii. Causeways and docks shall not be located in river mouths or deltas. Artificial gravel islands and bottom founded structures shall not be located in river mouths or active stream channels on river deltas, except as provided for in measure iii below. iii. Each proposed structure will be reviewed on a case-by-case basis. Causeways, docks, artificial gravel islands, and bottom-founded structures may be permitted if the director, in consultation with ADF&G, ADEC, and the NSB determines that a causeway or other structures are necessary for field development and that no practicable alternatives exist. A monitoring program may be required to address the objectives of water quality and free passage of fish, and mitigation shall be required where significant deviation from objectives occurs. 	<p>A.1.k.i. N/A: No causeways are proposed for this exploration will drilling project.</p> <p>A.1.k.ii. N/A: No causeways, docks, gravel islands, or bottom founded structures are proposed for this exploration will drilling project</p> <p>A.1.k.iii. N/A: No causeways, docks, gravel islands, or bottom founded structures are proposed for this exploration will drilling project</p>
l. Dismantlement, Removal and Rehabilitation (DR&R): Upon abandonment of material sites, drilling sites, roads, buildings, or other facilities, such facilities must be removed and the site rehabilitated to the satisfaction of the director, unless the director, in consultation with DMLW, ADF&G, ADEC, NSB, and any	A.1.l. Satisfied: All temporary facilities and waste will be removed, all ice pads will be scraped to remove residual waste, and the well will be plugged and abandoned in accordance with Alaska Oil and Gas Conservation Commission (AOGCC)

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<p>non-state surface owner, determines that such removal and rehabilitation is not in the state's interest.</p>	<p>regulations. Packed snow roads and ice pads will be allowed to degrade (thaw) naturally.</p>
<p>m. Gravel mining sites required for exploration and development activities will be restricted to the minimum necessary to develop the field efficiently and with minimal environmental damage. Where practicable, gravel sites must be designed and constructed to function as water reservoirs for future use. Gravel mine sites required for exploration activities must not be located within an active floodplain of a watercourse unless DMLW, after consultation with ADF&G, determines that there is no practicable alternative, or that a floodplain site would enhance fish and wildlife habitat after mining operations are completed and the site is closed.</p> <p>Mine site development and rehabilitation within floodplains must follow the procedures outlined in McLean, R. F. 1993, North Slope Gravel Pit Performance Guidelines, ADF&G Habitat and Restoration Division Technical Report 93-9, available from ADF&G.</p>	<p>A.1.m. N/A: No gravel mining is proposed for the exploration well drilling project.</p>
<p>2. Habitat, Fish, and Wildlife</p>	
<p>a. Detonation of explosives will be prohibited in open water areas of fish-bearing streams and lakes. Explosives must not be detonated beneath, or in proximity to fish-bearing streams and lakes if the detonation of the explosive produces a pressure rise in the water body of greater than 2.7 pounds per square inch, or unless the water body, including its substrate, is solidly frozen. Detonation of explosives within or in close proximity to a fish spawning bed during the early stages of egg incubation must not produce a peak particle velocity greater than 0.5 inches per second. Blasting criteria have been developed by ADF&G and are available upon request from ADF&G. The location of known fish-bearing waters within the project area can also be obtained from ADF&G.</p> <p>The lessee will consult with the NSB before proposing the use of explosives for seismic surveys. The director may approve the use of explosives for seismic surveys after consultation with the NSB.</p>	<p>A.2.a. N/A: No explosives will be utilized for the exploration well drilling project.</p>
<p>b. Removal of water from fish-bearing rivers, streams, and natural lakes shall be subject to prior written approval by DMLW and ADF&G. Water intake pipes used to remove water from fish-bearing water bodies must be surrounded by a</p>	<p>A.2.b. Satisfied: NordAq has received permits from ADF&G for water withdrawal from</p>

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screened enclosure to prevent fish entrainment and impingement. Screen mesh size shall be no greater than 1 mm (0.04 inches), unless another size has been approved by ADF&G. The maximum water velocity at the surface of the screen enclosure may be no greater than 0.1 foot per second, unless an alternative velocity has been approved by ADF&G.	fish-bearing lakes and has applied for temporary water use permits from ADNR. All water intake pipes will be screened and operated in accordance with ADNR and ADF&G permits and regulations.
c. Removal of snow from fish-bearing rivers, streams, and natural lakes shall be subject to prior written approval by ADF&G. Compaction of snow cover overlying fish-bearing water bodies is prohibited except for approved crossings. If ice thickness is not sufficient to facilitate a crossing, ice or snow bridges may be required.	A.2.c. Satisfied: Snow removal on lakes and streams and the crossing of lakes and streams will be conducted in accordance with received ADF&G permits and regulations.

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<p>d. Bears:</p> <ul style="list-style-type: none"> i. Lessees are required to prepare and implement a human-bear interaction plan designed to minimize conflicts between bears and humans. The plan should include measures to: <ul style="list-style-type: none"> A. minimize attraction of bears to facility sites, including garbage and food waste; B. organize layout of buildings and work areas to minimize interactions between humans and bears such as including the use of electric fencing; C. warn personnel of bears near or on facilities and the proper actions to take; D. if authorized, deter bears from the drill site; E. provide contingencies in the event bears do not leave the site; F. provide for proper storage and disposal of materials that may be toxic to bears; and G. document and communicate the sighting of bears onsite or in the immediate area to all shift employees. ii. Before commencement of any activities, lessees shall consult with ADF&G to identify the locations of any known brown bear den sites that are occupied in the season of proposed activities. Exploration and development activities started between September 20 and May 15 may not be conducted within one-half mile of known occupied brown bear dens, unless alternative mitigation measures are approved by ADF&G. A lessee who encounters an occupied brown bear den not previously identified by ADF&G must report it to the Division of Wildlife Conservation, ADF&G, within 24 hours. Mobile activities shall avoid such discovered occupied dens by one-half mile unless alternative mitigation measures are approved by DO&G with concurrence from ADF&G. Non-mobile facilities will not be required to 	<p>A.2.d.</p> <p>A.2.d.i. A- G</p> <p>Satisfied: The NordAq Wildlife Avoidance & Interaction Plan contains measures that satisfy all aspects of this mitigation measure. NordAq staff and contractors will implement and adhere to the training, guidelines, and procedures contained in the Wildlife Avoidance & Interaction Plan. Further, NordAq will submit a request to the USFWS for an Incidental Harassment Authorization for the harassment or hazing of polar bears that may be present at the drill site or camps.</p> <p>A.2.d.ii.</p> <p>Satisfied: NordAq will consult with ADF&G prior to commencing operations in order to identify locations of brown bear dens. NordAq will follow the guidelines and procedures outlined in their Wildlife Avoidance & Interaction Plan in order to avoid and mitigate interactions with brown bear dens.</p> <p>A.2.d.iii.</p> <p>Satisfied: NordAq has contacted USFWS regarding the proposed project and has submitted a request for Letter of Authorization for Incidental Take and for Intentional Take by Harassment. NordAq will consult with USFWS prior to commencing operations in order to identify locations of polar bear dens. NordAq has notified UFWS of its intention to participate in the USFWS FLIR program to identify polar bear den locations. Further, NordAq will follow the guidelines and procedures outlined in their Wildlife Avoidance & Interaction Plan in order to avoid and mitigate interactions with polar bears and their dens.</p>
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<p>relocate.</p> <p>iii. Before commencement of any activities, lessees shall consult with the USFWS to identify the locations of known polar bear den sites. Operations must avoid known polar bear dens by 1 mile. A lessee who encounters an occupied polar bear den not previously identified by USFWS must report it to the USFWS within 24 hours and subsequently avoid the new den by 1 mile. If a polar bear should den within an existing development, off-site activities shall be restricted to minimize disturbance.</p>	
<p>e. Permanent, staffed facilities must be sited to the extent practicable outside identified brant, white-fronted goose, snow goose, tundra swan, king eider, common eider, Steller's eider, spectacled eider, and yellow-billed loon nesting and brood rearing areas.</p>	<p>A.2.e. N/A: There are no permanent facilities proposed for the Tulimaniq 2014-2015 drilling program.</p>
<p>f. Due to high concentrations of staging and molting brant and other waterbirds within the coastal habitats along the Teshekpuk Lake Special Area (TLSA) and other areas, operations that create high levels of disturbance, including but not limited to dredging, gravel washing, and boat and barge traffic along the coast, will be prohibited from June 20 to September 15 within one-half mile of coastal salt marshes, specifically tracts 187, 209, 320, 483-485, 493, 494, 496, 497, 500-514, 517-519, 524, and 530. In addition, tracts 228 and 231, and tracts 521-526 are subject to the same restrictions between May 15 and July 30 to protect large concentrations of breeding snow geese. The construction and siting of facilities within one mile of these areas may be allowed on a case-by-case basis if the director and ADF&G determine that no other feasible and prudent location exists.</p>	<p>A.2.f. Satisfied: NordAq has investigated the potential of utilizing space on barges contracted by others to transport materials and supplies to Point Lonely. However, if barging were to be utilized in support of this project, no activity is expected to occur in the project area until after September 15, 2014.</p>
<p>g. To protect hauled-out spotted seals, boat and barge traffic will be prohibited between July 15 and October 1 within one-half mile of the Piasuk River delta and Oarlock Island.</p>	<p>A.2.g. N/A: NordAq will not be operating vessels in the area of the Piasuk River Delta or Oarlock Island for this project.</p>

3. Subsistence, Commercial, and Sport Harvest Activities	
<p>a.</p> <ul style="list-style-type: none"> i. Before submitting a plan of operations for either onshore or offshore activities that have the potential to disrupt subsistence activities, the lessee shall consult with the potentially affected subsistence communities, the AEWC, and the NSB (collectively "parties") to discuss the siting, timing, and methods of proposed operations and safeguards or mitigating measures that could be implemented by the operator to prevent unreasonable conflicts. The parties shall also discuss the reasonably foreseeable effect on subsistence activities of any other operations in the area that they know will occur during the lessee's proposed operations. Through this consultation, the lessee shall make reasonable efforts to assure that exploration, development, and production activities are compatible with subsistence hunting and fishing activities and will not result in unreasonable interference with subsistence harvests. In order to avoid conflicts with subsistence, commercial, and sport harvest activities, restrictions may include alternative site selection, requiring directional drilling, seasonal drilling restrictions, and other technologies deemed appropriate by DO&G. ii. A discussion of resolutions reached or not reached during the consultation process and any plans for continued consultation shall be included in the plan of operations. The lessee shall identify who participated in the consultation and send copies of the plan to participating communities and the NSB when it is submitted to the division. iii. If the parties cannot agree, then any of them may request that the commissioner of ADNOR or his/her designee to intercede. The commissioner may assemble the parties or take other measures to resolve conflicts among the parties. iv. The lessee shall notify the director of all concerns expressed by 	<p>A.3.a.i.</p> <p>Satisfied: NordAq is committed to preventing unreasonable conflicts with subsistence activities and has developed a Plan of Cooperation and Good Neighbor Plan based on consultations with the NSB (Planning and Wildlife Departments) and the Bureau of Land Management (BLM) Subsistence Advisory Panel (SAP). The Plan is intended to assist in efforts to mitigate potential conflicts between the NordAq 2014-2015 winter activities, subsistence hunting, and cultural activities.</p> <p>A.3.a.ii. – iv.</p> <p>Satisfied: NordAq staff and contractors participated in an agency pre-application meeting on June 27, 2014. Representatives of the NSB Planning Department attended and participated in the meeting. NordAq will continue to consult with the NSB Planning and Wildlife Departments in order to mitigate impacts to subsistence activities by the NordAq drilling program and will apply for the appropriate NSB Land Use Permit(s) necessary to operate.</p> <p>NordAq will present its 2014-2015 exploration drilling program in the SAP meeting scheduled for September 10-11, 2014 in Barrow. Further, NordAq has planned to travel to the communities of Atkasuk, Barrow, and Nuiqsut in October 2014 to provide the communities with an opportunity to learn about the project and to provide feedback to NordAq.</p> <p>NordAq expects subsistence hunters or local residents to communicate their concerns to NordAq with the expectation that NordAq will investigate and mitigate the perceived impact through operational changes and emergency assistance.</p>

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<p>subsistence hunters during operations and of steps taken to address such concerns.</p>	
<p>b. Traditional and customary access to subsistence areas shall be maintained unless reasonable alternative access is provided to subsistence users. "Reasonable access" is access using means generally available to subsistence users. Lessees will consult the NSB, nearby communities, and native organizations for assistance in identifying and contacting local subsistence users.</p>	<p>A.3.b. Satisfied: Public access to packed snow trails will be allowed. A safety exclusion zone will be identified using signs at and approaching the Tulimaniq well site, warning the public of the work in progress. Unless a safety concern arises, NordAq will not impede traditional and customary access for subsistence users.</p>
<p>c. Whale Harvest Protection:</p> <ul style="list-style-type: none"> i. Permanent facility siting on Cross Island will be prohibited unless the lessee demonstrates to the satisfaction of the NSB, in consultation with the AEWC, that the development will not preclude reasonable access to whales as defined in Section A8 and as may be determined in a conflict avoidance agreement, if required by the NSB. With the approval of the NSB, the director may authorize permanent facilities. ii. Permanent facility siting in state waters within 3 miles of Cross Island will be prohibited unless the lessee demonstrates to the satisfaction of the director, in consultation with the NSB and the AEWC, that the development will not preclude reasonable access to whales as defined in Section A8 and as may be determined in a conflict avoidance agreement if required by the NSB. iii. Permanent facility siting in state waters between the west end of Arey Island and the east end of Barter Island (Tracts 40 through 45) will be prohibited unless the lessee demonstrates to the satisfaction of the director, in consultation with the NSB and the AEWC, that the development will not preclude reasonable access to whales as defined in Section A8 and as may be determined in a conflict avoidance agreement if required by the NSB. 	<p>A.3.c.i. – iii. N/A: no permanent facilities will be constructed in support of the NordAq 2014-2015 Tulimaniq #1 Exploration Drilling Program.</p>
<p>d. Any tract or portion thereof in the Beaufort Sea Areawide lease sale area may be subject to seasonal drilling restrictions in conjunction with the submission of a plan of operations permit application by the lessee.</p>	<p>A.3.d. Satisfied: NordAq accepts that any tract in the Beaufort Sea Areawide lease sale area may be subject to seasonal drilling restrictions.</p>

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<p>i. Exploratory Drilling From Bottom-founded Drilling Structures and Natural and Gravel Islands: Subject to measure iii below, exploratory drilling operations and other downhole operations from bottom-founded drilling structures and natural and gravel islands are allowed year-round in the Central Subsistence Whaling Zone (SWZ).¹ In the Eastern SWZ, drilling is prohibited upon commencement of the fall bowhead whale migration until whaling quotas have been met.</p> <p>ii. Exploratory Drilling Operations from Floating Drilling Structures: Subject to measure iii below, exploratory drilling below a predetermined threshold depth and other downhole operations from floating drilling structures is prohibited throughout the Beaufort Sea upon commencement of the fall bowhead whale migration until the whale migration mid-point.²</p> <p>In addition to the above restriction, exploratory drilling above and below a predetermined threshold depth in the Eastern SWA from floating drilling structures is prohibited upon commencement of the fall bowhead whale migration until the whaling quotas have been met.</p> <p>In the Central and Western SWZ, exploratory drilling above and</p>	<p>A.3.d.i. N/A: NordAq will not be operating a bottom-founded drilling structure. NordAq will commence drilling activity no sooner than February 2015, on frozen ice and will not interfere with or impact the fall bowhead whale migration.</p> <p>A.3.d.ii. N/A: NordAq will not be operating a floating drilling structure. NordAq will commence drilling activity no sooner than February 2015, on frozen ice and will not interfere with or impact the fall bowhead whale migration.</p> <p>A.3.d.iii.A. – C. N/A: NordAq will not be conducting drilling operations during periods of broken ice. All drilling activity will take place on an ice island and will commence no sooner than February 2015.</p>
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1 *Subsistence Whaling Zones:*
Eastern SWZ is that area within 20 nautical miles of the shoreline between 141° and 144° W longitude.
Central SWZ is that area within 20 nautical miles of the shoreline between 144° and 151° W longitude.
Western SWZ is that area within 20 nautical miles of the shoreline between 154° and 157° W longitude.

2 *Migration Dates:*
Eastern SWZ - September 1 - October 10 with the midpoint of the migration on September 20.
Central SWZ and Western SWZ - September 10 - October 20 with the midpoint of the migration on September 28.
Outside SWZ - Seaward of the Eastern SWZ - September 1 - October 10 with the midpoint of the migration on September 20; Seaward and west of the Central SWZ - September 10 - October 20 with the midpoint of migration on September 28. The midpoint of the migration is when 50 percent of the whales have been deemed to have passed the drill site.

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below a predetermined threshold depth may be prohibited on a case-by-case basis until the whaling quotas have been met.³ The following criteria will be used to evaluate these operations: 1) proximity of drilling operations to active or proposed whaling areas, 2) drilling operation type and feasible drilling alternatives, 3) number of drilling operations in the same area, 4) number of whaling crews in the area, and 5) the operator's plans to coordinate activities with the whaling crews in accordance with Mitigation Measure A3a.

All non-essential activities associated with drilling are prohibited in the Central SWZ during the whale migration until whaling quotas have been met. Essential support activity associated with drilling structures occurring within active whaling areas shall be coordinated with local whaling crews in accordance with Mitigation Measure A3a.

"Essential activities" include those necessary to maintain well control, maintain physical integrity of the drilling structure, and scheduled crew changes. Support craft include aircraft, boats, and barges. "Non-essential activity," by exclusion, are those activities that do not fit the definition of essential activities. Both types of activities must be described by the operators in their exploration plans submitted for state review. To the extent feasible, mobilization or demobilization of the drilling structures should not occur during the whale migration. If operators propose to mobilize or demobilize during the whale migration, they must describe the activity in their exploration plan and must demonstrate why the activity must occur during the migration period.

- iii. Exploratory Drilling in Broken Ice: Lessees conducting drilling operations during periods of broken ice must:

³ If upon review of the proposed operation using the above described criteria, the state determines that conflict with subsistence whaling activities may occur, additional drilling restrictions, similar to those imposed for the Eastern SWZ, may be imposed in the Central and Western SWZ's. In the Eastern SWZ, drilling is prohibited upon commencement of the fall bowhead migration until whaling quotas have been met.

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<ul style="list-style-type: none"> A. be trained and qualified in accordance with Minerals Management Service standards pertaining to well-control equipment and techniques; and B. have an oil spill contingency plan approved by the state that includes requirements for in situ igniters, fire resistant boom, relief well plans, and a decision process for igniting an uncontrolled release of oil; C. participate in an oil spill research program. 	
<p>e. Exploration, development and production activities located on lease tracts 1 through 26 shall be conducted in a manner that prevents unreasonable conflicts between oil and gas activities and subsistence whale hunting.</p> <ul style="list-style-type: none"> i. Before submitting a plan of operations for activities on lease tracts 1 through 26, the lessee shall consult with the NSB, the AEWC, and the community of Kaktovik to discuss how the siting, timing, and methods of proposed operations can be planned and carried out to avoid potential conflicts with subsistence whale hunting. Through this consultation, which may include the negotiation of a conflict avoidance agreement, the lessee shall make every reasonable effort to ensure that their activities will not result in unreasonable interference with subsistence whale hunting. ii. A plan of operations for activities on lease tracts 1 through 26 shall include a discussion of the consultation process and any resulting conflict avoidance agreements. In the event that no agreement is reached, the lessee, the NSB, the AEWC, or the community of Kaktovik may request that ADNDR call a meeting of representatives of the NSB, the AEWC, the community of Kaktovik, and the lessee to discuss the potential conflict caused by the proposed activities, and attempt to resolve the issues. If the parties are still unable to reach an agreement, then ADNDR will make a final determination of the measures proposed to be taken to prevent unreasonable interference with subsistence whale hunting. 	<p>A.3.e N/A: NordAq will not be conducting exploration activities on lease tracts 1 through 26.</p> <p>A.3.e.i. N/A: NordAq will not be conducting exploration activities on lease tracts 1 through 26.</p> <p>A.3.e.ii. N/A: NordAq will not be conducting exploration activities on lease tracts 1 through 26.</p>

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4. Fuel, Hazardous Substances, and Waste	
a. Secondary containment (see definition) shall be provided for the storage of fuel or hazardous substances.	<p>A.4.a.</p> <p>Satisfied: Secondary containment of bermed and impermeable membrane-lined fuel storage areas will be used for all fuel storage. The fuel storage containment is designed for Arctic conditions and will be capable of holding a minimum 110 percent of the maximum capacity of fuel storage.</p>
b. Containers with a storage capacity larger than 55 gallons that contain fuel or hazardous substances shall not be stored within 100 feet of a water body, or within 1,500 feet of a current surface drinking water source.	<p>A.4.b.</p> <p>Waiver requested: The ice island for the drilling rig will be constructed on Smith Bay. Bermed and impermeable lined fuel storage areas will be used to temporarily store diesel fuel and drilling fluids. The diesel fuel storage containment is designed for arctic conditions.</p>
c. During equipment storage or maintenance, the site shall be protected from leaking or dripping fuel and hazardous substances by the placement of drip pans or other surface liners designed to catch and hold fluids under the equipment, or by creating an area for storage or maintenance using an impermeable liner or other suitable containment mechanism.	<p>A.4.c.</p> <p>Satisfied: All storage and maintenance will be conducted in a manner that contains any leaks or drips from equipment. Any small drips or leaks will be containerized and disposed of at an approved treatment and disposal facility.</p>
d. During fuel or hazardous substance transfer, secondary containment or a surface liner must be placed under all container or vehicle fuel tank inlet and outlet points, hose connections, and hose ends. Appropriate spill response equipment, sufficient to respond to a spill of up to 5 gallons, must be on hand during any transfer or handling of fuel or hazardous substances. Trained personnel shall attend transfer operations at all times.	<p>A.4.d.</p> <p>Satisfied: All fuel transfers will be conducted by trained personnel in accordance with a Spill Prevention, Control, and Countermeasure Plan (SPCC). Duck ponds will be utilized under container and fuel tank inlet and outlet points as well as under hose connections and hose ends. Spill response equipment will be on hand at all points where fuel is to be transferred.</p>
e. Vehicle refueling shall not occur within the annual floodplain, except as addressed and approved in the plan of operations. This measure does not apply to water-borne vessels.	<p>A.4.e.</p> <p>Waiver requested: Due to the location of the Tulimaniq operations, vehicle refueling is likely to occur within the annual floodplain. All refueling will be conducted in accordance with the SPCC Plan in order to mitigate the risk of spills and to provide adequate and rapid spill response if needed.</p>
f. All independent fuel and hazardous substance containers shall be marked with the contents and the lessee's or contractor's name using paint or a	<p>A.4.f.</p> <p>Satisfied: All fuel containers will be marked with the appropriate name of the</p>

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permanent label.	responsible party.
g. A fresh water aquifer monitoring well, and quarterly water quality monitoring, may be required down gradient of a permanent above-ground liquid hydrocarbon storage facility.	<p>A.4.g.</p> <p>N/A: There are no permanent facilities proposed for the NordAq Tulimaniq 2014-2015 drilling program.</p>
h. Waste from operations must be reduced, reused, or recycled to the maximum extent practicable. Garbage and domestic combustibles must be incinerated or disposed of at an approved site in accordance with 18 AAC 60. (See also Section B2, below.)	<p>A.4.h.</p> <p>Satisfied: Waste management will be based on waste minimization and disposal and will comply with Federal, State, and local regulations to prevent attracting wildlife. All solid waste will be temporarily stored at each site pending shipment from the area. Non-putrescible waste will be deposited in "super sacks" at the drill site and will be transported overland to an approved disposal facility. Food and other putrescible waste will be stored in enclosed wildlife-proof containers and managed in accordance with the required visual screening and protocols.</p> <p>Camp wastewater will be processed through the camp wastewater treatment system and discharged in accordance with the North Slope General Permit No. AKG-57-2000. The treatment system will meet Federal and State requirements. Wastewater generated by the rig camp would be approximately 5,000 GPD. Remnant sludge, seepage, grit, or grindings from the treatment system will be transported to an approved disposal facility.</p>
i. New solid waste disposal sites will not be approved or located on state property during the exploration phase. Exceptions may be provided for drilling waste if the facility will comply with the applicable provisions of 18 AAC 60.	<p>A.4.i.</p> <p>N/A: NordAq will not establish a new solid waste disposal site but will utilized approved existing methods and facilities for disposal of all waste.</p>
j. Wherever practicable, the preferred method for disposal of muds and cuttings from oil and gas activities is by underground injection. Other methods of disposal shall be allowed only upon approval by the director, in consultation with ADEC and ADF&G.	<p>A.4.j.</p> <p>Satisfied: Water based drilling fluids will be used through all phases of well construction. Approximately 5,500 gallons per day (GPD) of non-hazardous Underground Injection Control (UIC) Class II fluids will require temporary on-site storage and disposal. Drilling fluids will be injected via annular disposal or transported to a Prudhoe Bay disposal facility. The cuttings will be placed in cuttings bins in a temporary storage cell with secondary containment consisting of ice berms and/or impermeable liner, and transported to Prudhoe Bay for disposal at a permitted grind and inject facility.</p>

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k. Proper disposal of garbage and putrescible waste is essential to minimize attraction of wildlife. The lessee must use the most appropriate and efficient method to achieve this goal. The primary method of garbage and putrescible waste disposal is prompt, on-site incineration in compliance with state air quality control regulations (18 AAC 50). The secondary method of disposal is on-site frozen storage in animal-proof containers with backhaul to an approved waste disposal facility. The tertiary method of disposal is on-site non-frozen storage in animal proof containers with backhaul to an approved waste disposal facility. Daily backhauling of non-frozen waste must be achieved unless safety considerations prevent it.

A.4.k.

Satisfied: Waste management will be based on waste minimization and disposal and will comply with Federal, State, and local regulations to prevent attracting wildlife. All solid waste will be temporarily stored at each site pending shipment from the area. Non-putrescible waste will be deposited in "super sacks" at the drill site and will be transported overland to an approved disposal facility. Food and other putrescible waste will be stored in enclosed wildlife-proof containers and managed in accordance with the required visual screening and protocols.

5. Access	
<p>a. Except for approved off-road travel, exploration activities must be supported only by ice roads, winter trails, existing road systems or air service. Wintertime off-road travel across tundra and wetlands may be approved in areas where snow and frost depths are sufficient to protect the ground surface. Summertime off-road travel across tundra and wetlands may be authorized subject to time periods and vehicle types approved by DMLW. Exceptions may be granted by DMLW, and the director, if an emergency condition exists; or, if it is determined, after consulting with ADF&G that travel can be accomplished without damaging vegetation or the ground surface.</p>	<p>A.5.a.</p> <p>Satisfied: Frozen overland and oversea ice trails will be used to transport supplies and equipment from Prudhoe Bay to the project area. Existing permanent gravel roads and frozen trails will be used to the maximum extent possible but no new gravel roads or pads will be constructed. Frozen trail access west of the Colville River would be on Bureau of Land Management (BLM) land. The frozen trails will be packed and maintained using the generally accepted practices for the North Slope, subject to BLM and Alaska Department of Natural Resources (ADNR) tundra opening criteria. Pre-packing of the trail will be requested prior to the official tundra opening to preserve early snow. Overland travel to the drill site will be via approved low-pressure all-terrain vehicles (LPVs) from staging areas.</p> <p>NordAq does not anticipate the need for the placement of gravel for this winter exploration program.</p>
<p>b. Public access to, or use of, the lease area may not be restricted except within the immediate vicinity of drill sites, buildings, and other related facilities. Areas of restricted access must be identified in the plan of operations. Lease facilities and operations shall not be located so as to block access to or along navigable or public waters as defined in AS 38.05.965.</p>	<p>A.5.b.</p> <p>Satisfied: Public access to packed snow trails will be allowed. No control points are planned. A safety exclusion zone will be identified using signs at and approaching the Tulimaniq well site, warning the public of the work in progress.</p>
6. Prehistoric, Historic, and Archaeological Sites	
<p>a. Before the construction or placement of any gravel, or other structure, road, or facility resulting from exploration, development, or production activities, the lessee must conduct an inventory of prehistoric, historic, and archaeological sites within the area affected by an activity. The inventory must include consideration of literature provided by the NSB, nearby communities, Native organizations, and local residents; documentation of oral history regarding prehistoric and historic uses of such sites; evidence of consultation with the Alaska Heritage Resources Survey and the National Register of Historic Places; and site surveys. The inventory must also include a detailed analysis of the</p>	<p>A.6.a.</p> <p>Satisfied: A cultural resources survey and inventory was conducted for NordAq by Reanier and Associates in the project area in the summer of 2013.</p>

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effects that might result from the activity.	
b. The inventory of prehistoric, historic, and archaeological sites must be submitted to the director and to DPOR Office of History and Archaeology who will coordinate with the NSB for review and comment. If a prehistoric, historic, or archaeological site or area could be adversely affected by a lease activity, the director, after consultation with DPOR Office of History and Archaeology and the NSB, will direct the lessee as to the course of action to take to avoid or minimize adverse effects.	A.6.b. Satisfied: The Cultural Resources Report can be provided to DPOR Office of History and Archaeology and the NSB under separate cover. It has already been provided to the BLM.
c. If a site, structure, or object of prehistoric, historic, or archaeological significance is discovered during lease operations, the lessee must report the discovery to the director as soon as possible. The lessee must make reasonable efforts to preserve and protect the discovered site, structure, or object from damage until the director, after consultation with DPOR Office of History and Archaeology and the NSB, has directed the lessee as to the course of action to take for its preservation.	A.6.c. Satisfied: If in the course of operations site, structure, or object of prehistoric, historic, or archaeological significance is discovered, NordAq and its contractors will make every reasonable effort to preserve and protect the site and will immediately report any discovery to SHPO, the NSB, and BLM.
7. Local Hire, Communication, and Training	
a. Lessees are encouraged to employ local and Alaska residents and contractors, to the extent they are available and qualified, for work performed in the lease area. Lessees shall submit, as part of the plan of operations, a proposal detailing the means by which the lessee will comply with the measure. The proposal must include a description of the operator's plans for partnering with local communities to recruit, hire and train local and Alaska residents and contractors. The lessee is encouraged, in formulating this proposal, to coordinate with employment and training services offered by the State of Alaska and local communities to train and recruit employees from local communities.	A.7.a. Satisfied: Hiring opportunities are limited during exploration drilling. However, subsistence observers at well sites during operations, marine mammal observer(s) on the barges, translators, Native elders who are willing to share traditional knowledge of the area, and others have been and will continue to be hired for the NordAq exploration project. The shared knowledge by elders has been and will continue to be used to assist in avoiding conflicts and to identify subsistence resource areas. Applicable traditional knowledge will be used during the project orientation training section.
b. A plan of operations application must describe the lessee's past and prospective efforts to communicate with local communities and interested local community groups.	A.7.b. Satisfied: NordAq will follow the Plan of Cooperation and Good Neighbor Plan that describes our means of communication with the communities and a code of conduct expected of our employees and contractors. Initial communications have been conducted and are discussed below. A copy of the plan is provided as Appendix C to the Plan of Operations.

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	<p>NordAq representatives have met with NSB Mayor's office, NSB Wildlife and Planning Departments, whaling captains, and the Alaska Eskimo Whaling Commission (AEWC) to introduce the project. The initial discussions included a description of the summer work efforts. Additionally, NordAq presented to the BLM Subsistence Advisory Panel on September 18 and 19, 2013 in Wainwright, Alaska. NordAq will again present to the BLM Subsistence Panel in September of 2014.</p> <p>NordAq intends to conduct introductory meetings in in Barrow, Atkasuk, and Nuiqsut in October of 2014. At each of these meetings, NordAq will inquire about subsistence patterns of use, impacts that could occur, and mitigation measures that could reduce or eliminate those concerns.</p>
<p>c. A plan of operations application must include a training program for all personnel including contractors and subcontractors. The program must be designed to inform each person working on the project of environmental, social, cultural, health, and safety concerns that relate to that person's job. The program must use methods to ensure that personnel understand and use techniques necessary to preserve geological, archaeological, and biological resources. In addition, the program must be designed to help personnel increase their sensitivity and understanding of community values, customs, and lifestyles in areas where they will be operating.</p>	<p>A.7.c.</p> <p>Satisfied: All employees working on the Tulimaniq exploration drilling project will be required to receive training. The training will include project area orientation, threatened and endangered species information, environmental, social, and cultural awareness, subsistence conflict avoidance, and pertinent mitigation that will be specific to the NordAq Tulimaniq exploration project. All project personnel will be required to attend annual training. Training records will be maintained while the site is active.</p>
<p>8. Definitions</p>	
<p><u>Facilities</u> means any structure, equipment, or improvement to the surface, whether temporary or permanent, including, but not limited to, roads, pads, pits, pipelines, power lines, generators, utilities, airstrips, wells, compressors, drill rigs, camps and buildings.</p> <p><u>Hazardous substance</u> means (A) an element or compound that, when it enters into or on the surface or subsurface land or water of the state, presents an imminent and substantial danger to the public health or welfare, or to fish, animals, vegetation, or any part of the natural habitat in which fish, animals, or wildlife may be found; or (B) a substance defined as a hazardous substance under 42 USC 9601 - 9675 (Comprehensive Environmental Response, Compensation, and Liability Act of 1980); "hazardous substance" does not include uncontaminated crude oil or uncontaminated refined oil (AS 46.09.900).</p>	

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Identified wetlands are those areas that have been identified as wetlands by the U. S. Army Corps of Engineers under Section 404 of the Clean Water Act.⁴.

Minimize means to reduce adverse impacts to the smallest amount, extent, duration, size, or degree reasonable in light of the environmental, social, or economic costs of further reduction.

Plan of operations means a lease plan of operations under 11 AAC 83.158 and a unit plan of operations under 11 AAC 83.346.

Practicable means feasible in light of overall project purposes after considering cost, existing technology, and logistics of compliance with the standard.

Reasonable access means access using means generally available to subsistence users.

Secondary containment means an impermeable diked area or portable impermeable containment structure capable of containing 110 percent of the volume of the largest independent container. Double walled tanks do not qualify as Secondary Containment unless an exception is granted for a particular tank.

Temporary means no more than 12 months.

⁴ **Wetlands** means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (40 CFR Parts 122.2, 230.3, and 232.2).